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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/786,059	06/13/2001	Pascale Motte	203024US0XPCT	6945

22850 7590 11/25/2002
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EXAMINER

CHEN, BRET P

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 11/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/786,059

Applicant(s)

Pascale Motte et al.

Examiner

Bret Chen

Art Unit

1762



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19-36 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 3
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Claims 19-36 are pending in this application.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and **generally limited to a single paragraph** on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "**The disclosure concerns,**" "The disclosure defined by this invention," "The disclosure describes," etc.

In the abstract line 1, delete "The invention concerns".

In line 22, delete "Fig.3".

In addition, please combine all the steps into one paragraph.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

It is noted that the claimed invention is not directed to the deposition of a silicon-containing dielectric material. The examiner suggests deleting "silicon-containing" in the title.

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Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 35-36 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim Rejections - 35 USC § 112

4. Claims 19-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claim 27, the applicant requires gases, flow rates, energy, and time in order to obtain a desired thickness and desired physical properties. However, the specification does not enable one skilled in the art to obtain a desired thickness and desired physical properties. The same issue applies to claim 28.

5. Claims 19-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In claim 19 line 1, the term "apparent" is confusing and/or is not clear as to what it means.. The examiner suggests its deletion. The same issue applies to claim 32.

In claim 19 line 3, the term "CVD type" is considered indefinite because the addition of the word "type" to an otherwise definite expression extends the scope of the expression so as to render it indefinite. The same issue applies to claim 32.

In claim 19 line 9, the term "the deposit" lacks antecedent basis. The same issue applies to claim 32.

In claim 19 last step, it is not clear why a third gas which is able to prevent contamination of copper is added when same is specifically required in a previous step. Appropriate amendments are requested. The same issue applies to claim 32.

In claim 20, the terms "the deposit chamber permitting plasma assisted chemical vapour deposition" and "the plasma" lack antecedent basis. The same issue applies to claim 33.

In claim 23, the term "the 5 second gas" is confusing and lacks antecedent basis.

In claim 24, the term "and/or" is vague and indefinite.

Claim 25 contains improper Markush terminology and should read --selected from the group consisting of--. The same issue applies to claim 26.

In claim 25, the chemical formulas are vague and confusing as the subscripts are not defined. The applicant is requested to provide same.

In claim 28, the term "the oxides" lacks antecedent basis.

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Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 19-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batey et al. (5,831,283) or Freeman (4,910,043). Batey discloses a method of depositing a layer of silicon nitride over copper (col.3 lines 11-19) by a PECVD (col.5 lines 21-22). The precursors can be silane and nitrogen (col.5 lines 45-48) and helium can be utilized (col.6 line 1).

Freeman discloses a method utilizing a single process chamber for deposition of silicon nitride with a silicon source and a nitrogen source (abstract) using a CVD apparatus (col.8 lines 41-44). The silicon source can be silane (col.26 lines 18-20). In one embodiment, the substrate can contain copper (col.42 lines 1-10) and an inert purging gas is utilized (col.26 lines 10-50). However, the references fail to teach a third gas to avoid contamination of copper.

It is noted that the reference fairly teaches the use of an inert gas. One skilled in the art knows that an inert gas is utilized to remove contamination. It would have been obvious to utilize the inert gas to remove the contamination of the copper surface.

The limitations of claims 20-24 have been addressed above.

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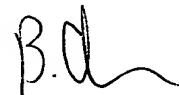
Hua et al. (6,372,291) has been provided for additional information.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bret Chen whose telephone number is (703) 308-3809. The examiner can normally be reached on Monday through Thursday from 6:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck, can be reached on (703) 308-2333. The fax phone number for this Group is (703) 872-9310. Amendment After Finals should be faxed to (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.

bc
November 20, 2002



BRET CHEN
PRIMARY EXAMINER